

PUBLIC DRINKING WATER QUALITY IN GEORGIA

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Abstract. From January 1993 through December 1995 the Environmental Protection Division's (EPD) Drinking Water Program compiled a comprehensive database of drinking water chemistry collected from public water systems (PWS). High risk sampling points were identified for collection of asbestos, cyanide and dioxin water samples. Samples for all other compound analyses were collected for four consecutive calendar quarters from all contracted PWS, at the entry point to the distribution system after treatment.

Based upon all compliance, EPD has issued statewide monitoring waivers for asbestos, cyanide, dioxin and most of the SOC's. Waivers were not issued for inorganic compounds and volatile organic compounds due to their usefulness as indicators of declining water quality. Monitoring waivers cannot be issued for micro biologicals, nitrate/nitrite, arsenic and lead and copper. Waiver issuance has dramatically reduced public water system chemical monitoring responsibilities, relieving the water systems of a great deal of burdensome sample collection and analyses for drinking water.

INTRODUCTION

Phase II/V of the Safe Drinking Water Regulations (Georgia Rules for Safe Drinking Water) dramatically increased the number of monitored water quality parameters and the monitoring requirements. The increase in drinking water analyses was necessary to determine which constituents are present in our drinking water and at what concentrations. The monitoring data established regulatory baseline concentration levels for the purpose of making Statewide monitoring waiver decisions.

Asbestos and dioxin analyses require unique analytical equipment not available at the EPD Laboratory or most other commercial laboratories, and are therefore very expensive to analyze. To help manage the expensive analytical cost of asbestos and dioxin, the water samples collected for these analyses were from high risk sampling points only. High risk sampling points are more vulnerable to parameter contamination based upon their proximity to a potential pollution source and the hydrologic relationship of the sampling point and a potential pollution source. Also, in the past, PWSs installed distribution pipe that had an asbestos content. Through time, corrosive water acts on the asbestos pipe, causing the pipe to release asbestos fibers into the drinking water.

ASSESSMENT STRATEGY

In the first compliance period, the Monitoring Waiver Program focused on assessing the asbestos, cyanide and dioxin contamination risks to Georgia's drinking water. In order to do this, customized sampling and analyses projects were implemented by EPD and the contracted water systems. Both treated and raw water were collected for asbestos, and treated water for cyanide and dioxin from the sampling points considered to be the most vulnerable to constituent contamination.

To establish regulatory baseline concentration levels for all other Phase II/V parameters, EPD implemented a very comprehensive monitoring scheme for all EPD contracted PWSs that involved sample collection according to federal guidelines. The analytical results are maintained in EPD's water system files in Atlanta.

METHODS

Since asbestos distribution pipe was utilized by some PWSs, EPD surveyed all contracted water systems to accurately identify the users. Once the survey was completed, the identified PWSs were asked to collect water samples and send them to an EPD contracted laboratory for analyses. Also, to identify water sources in close proximity to an asbestos source, a joint EPD/EPA project spatially analyzed the water source/asbestos source relationship. This included naturally occurring and manmade asbestos sources. PWSs with water sources close to and hydraulically down gradient from an asbestos source were asked to collect raw water samples for analyses.

The spatial relationships between public water sources and wood treatment facilities (dioxin waste producers) were reviewed using EPD GIS prepared maps. The water sources within five miles of a wood treatment facility were identified as high risk sites and water samples were collected at the corresponding entry point to the distribution system and sent to an EPD contracted laboratory for dioxin analyses.

Drinking water samples for cyanide analyses were collected from water sources that were in close proximity to industrial facilities that produced a cyanide waste stream. These industrial concerns were photo processors and electro metal plating operations. EPD Regional personnel collected the water samples and the EPD laboratory conducted the chemical analyses.

All contracted public water systems were required to collect water samples for SOC analyses at all entry points to the distribution systems for four consecutive quarters. This met Phase II/V requirements. Once all results were received, they were reviewed by EPD for regulatory compliance. Results were compared with detection limits and Maximum Contaminant Levels (MCL) specified in the Georgia Rules for Safe Drinking Water and the Federal Regulations (40 CFR).

RESULTS

Three hundred twenty-three water samples have been analyzed for their asbestos content. One PWS violated the asbestos MCL of 7 MFL greater than 10 microns long. The water system went to public notice and implemented chemical water treatment to neutralize the corrosive effect of its water on its asbestos distribution pipe. The amount of asbestos fibers in the utility system's water has been reduced dramatically.

Ninety high risk drinking water samples have been analyzed for their dioxin content. One PWS exceeded the dioxin detection limit of five picograms/liter after confirmation sample results averaging. After four consecutive quarter samples, results show that the water system has returned to compliance.

Sixty four water samples have been analyzed for their cyanide content by the EPD laboratory. The water samples were collected from risked sampling points. All samples contained no cyanide.

One hundred twenty-seven thousand, two hundred eighty-three (127,283) drinking water samples collected from the entry points to the distribution systems were analyzed by the EPD laboratory for their SOC content. All contracted PWSs remain compliant with drinking water quality standards. SOC concentration level exceedance is extremely rare. When EPD asked a system to conduct quarterly monitoring, the average of the quarterly results was in compliance with the drinking water quality standards. This supports EPD's claim that no pesticide exceedance has occurred to date.

CONCLUSION

The comprehensive sampling and analyses of drinking water samples for asbestos, cyanide, dioxin and SOC content demonstrate that Georgia's treated drinking water complies with the state and federal water quality standards.

Water systems that have asbestos pipe in their distribution system but maintain proper water treatment are not at risk to asbestos contamination. Risked water sources are not vulnerable to asbestos, cyanide and dioxin contamination.

All analytical results demonstrate the lack of water system vulnerability to these parameters and support EPD's monitoring waiver issuance to the contracted water systems. The waiver issuance has relieved PWSs of much of the burdensome sample collection, favorably managing the analytical costs for all parties from the Phase II/V requirements.

LITERATURE CITED

Georgia Rules for Safe Drinking Water, Chapter 391-3-5,
Revised March 1994.
40 Code of Federal Regulations Parts 100 to 149.